left eye the disease had been arrested and the optic nerve head showed less involvemnt. Vision O. S., 20/70.

* * *

CASE 2.—Nicotin poisoning in a man, age twenty-three. Shoemaker by trade. Negative family history. Denies ever drinking spirituous beverages, but he used tobacco to excess. He stated that he smoked between forty and fifty cigarettes a day; chewed tobacco at the same time; and all he took for his usual breakfast was a quart of strong black coffee. His chief complaint was dimness of vision. Stated that everything looked as though it were misty. He wanted glasses to overcome this discomfort so he could see to work and read. He also stated that his vision was better at night, and that was when he did most of his work. Vision O. D., 20/70; O. S., 20/100. Pupils reacted to light and accommodation. The eyes were otherwise normal except for a pallor of the optic nerve head on the temporal side. This pallor was horizontal and oval in form and extended from the macula lutea to the blind spot.

He discontinued the use of tobacco and coffee. With the use of sodium phosphate, strychnin, and sweating, his condition improved, and on examination eight weeks later his vision was: O. D., 20/30; O. S., 20/40. The pallor of the disks had entirely disappeared and the patient was in a cheerful mood.

COMMENT

Any patient, regardless of age, who complains of dimness of vision should receive an immediate and careful examination to determine its cause and should be treated accordingly. Especially is this necessary for patients whose vocation demands that they be able to differentiate between green and red. Any patient with bilateral diminished visual acuity, for which no other causes are evident, should make one suspicious of some form of toxic amblyopia. Treatment should be started early and continued over a long period of time.

17 North Virginia Street.

RUPTURE OF UTERUS*

REPORT OF CASES

By W. J. BLEVINS, M. D.
Woodland

RUPTURE of the uterus is a potential complication of every pregnancy. Its occurrence should always be anticipated, for, after the accident, only prompt action can save the life of mother and child.

Available statistics indicate that rupture of the uterus occurs about once in three thousand pregnancies. Since in the hands of the general practitioner, the true condition is often not recognized, it is our opinion that the accident occurs much more frequently. In fact our series shows five cases of rupture in 3061 pregnancies.

Rupture of the uterus may occur from direct violence as, for example, during a forceps delivery, or it may occur spontaneously. In the latter instance the remote cause usually will be found in some condition or procedure which has left a deficiency of the uterine wall. Such a weakened area may result from fibroids, from a previous cesarean operation, or from a cicatrized area resultant on the manual removal of an adherent placenta. Overstimulation of uterine contracture is a further cause of spontaneous rupture and the unwise use of pituitrin undoubtedly has been responsible for many such accidents.

That the incidence of uterine rupture is certainly less than in the past is easily understood when we consider the vast improvement in the technique of directing labor cases. Cesarean operations are more skillfully done; fibroids are not permitted to go unattended; forceps are used more intelligently; pituitrin is being respected as much for its powers for evil as for the safe assistance that it may occasionally render. Moreover women are becoming educated to the wisdom of hospitalization at the time of accouchement, the result being that postpartum conditions do not invite disaster in future pregnancies as was formerly the case.

KINDS OF RUPTURE DURING DELIVERY

Ruptures at the time of delivery are divided by DeLee into two classes: spontaneous and traumatic. He classifies spontaneous ruptures as those which occur as the result of the natural forces of labor as when there is disproportion between the child and the pelvis, when the pelvis is abnormal, when tumors interfere with delivery, or when either the uterine or abdominal wall is weak.

Traumatic ruptures are those which result from violence, or from unskilled and faulty interference with delivery. This accident may result from the unwise use of ergot or pituitrin; from improper application of forceps; from an attempt at version before the cervix is completely dilated; or by reason of unduly prolonged labor after dilatation is complete. In the latter instance the anterior portion of the cervix may be caught between the head and the pubic bone, or the posterior portion may be caught between the head and the sacral prominence, causing necrosis, resulting in the rupture of the injured portion during delivery.

If the attending physician has in mind the danger of rupture, he will be on the alert for it. The symptoms of impending spontaneous rupture in cases of long delayed labor may be recognized by a contraction ring appearing high above the pubes, frequently as high as the umbilicus, the lower uterine segment gradually thinning out so that the fetal parts may be easily felt through the abdominal wall. There is increasing tenderness in the pelvis, especially with each contraction, and it is impossible at times to make a satisfactory examination without an anesthetic. However, the tissues may fail gradually and rupture may occur without premonitory signs.

Following rupture there is usually a cessation of pain, the patient probably saying that something "broke" and gave relief. Contractions cease in a few minutes. The child, if it escapes, or partly escapes into the abdomen, soon dies. It may be felt plainly against the abdominal wall. Soon symptoms of shock (thready, rapid pulse.

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pallid skin, and weakness) appear. There may be no vaginal bleeding, in fact there is likely to be none unless the cervix is torn.

With traumatic rupture, the picture is different. If it is caused by manual dilatation with the use of forceps, or by version, no untoward symptoms may appear until delivery is completed. Severe hemorrhage may then be the first evidence of trouble, followed by shock. If caused by the use of pituitrin any part of the uterus may rupture and, if the tear is in the body of the uterus, the symptoms will be the same as those following spontaneous rupture.

Pituitrin is a dangerous drug if used without a careful study of the patient. Contraindications to its use are deformity, disproportion between the child and pelvis, a history of an adherent placenta removed with difficulty, or a uterus weakened by many previous labors.

A version should never be attempted until dilatation is complete; the same rule applies to the application of forceps. Where there has been a cesarean operation in the past for other reasons than a deformed pelvis or other structural abnormality, a trial labor may be given, watching carefully for delay in dilatation or faulty position of the child. (This should be done by means of rectal examination. With the first sign of delayed labor, a cesarean section should be considered.

If this accident occurs in practice out of a hospital, treatment depends entirely upon the facilities at hand. There is always great danger to both mother and child. The vagina should be packed as rapidly and as carefully as possible and the patient taken to a hospital at once. We think it is not best to insert the packing tightly into the uterus for the reason that the wound may be kept open, with increased bleeding, as the uterus contracts over the packing.

After the patient has been placed in the hospital, or if the accident occurs there, treatment depends on the site of the rupture. If the laceration is above the vagina, an abdominal operation should be done at once. A hysterectomy is usually best. If the wound is in the body of the uterus it is generally safe to leave the cervix, but if the tear extends into the cervix a complete removal of the organ should be done. If only the cervix is lacerated and the injured tissue can be reached from the vagina, the cervix may be repaired at once, and bleeding will stop as soon as the uterus is contracted.

If the vaginal portion of the uterus is necrosed from pressure in delayed labor, the injured tissue may be severed and sutures sufficient to control the hemorrhage may be put in. If much blood has been lost, the patient should have a transfusion before, during, or after any of these procedures.

REPORT OF CASES

We are reporting five cases showing a different injury in each, with treatment and results:

CASE 1.—Mrs. M. H., age thirty-two, first seen July 20, 1924, 12 noon. Two previous pregnancies: First child stillborn by reason of malposition. Second child delivered by cesarean section on account of shoulder presentation. Present pregnancy of about eight months duration. During the night experienced severe pain followed by symptoms of shock. She was brought to the hospital at once.

Examination showed no fetal movement nor fetal heart sounds: fetal parts not outlined. No uterine contractions. Urinalysis showed albumin, but no casts. The blood count showed secondary anemia (hemoglobin 48 per cent), low white count, and relatively high neutrophil count. Temperature normal.

Operation at 2 p m.: Midline incision. The fundus of the uterus was found adherent to the abdominal wall about the umbilicus. The uterus was edematous; there was a large hematoma in the muscular wall. The uterus was ruptured posteriorly at the level of the internal os, and was filled by old blood-clots. The fetus was dead. A subtotal hysterectomy was done.

The reaction from operation was very unsatisfactory for the first twelve hours. Following that period of time, progress was good except for some pleurisy. The patient was dismissed on August 18, 1924, in entirely satisfactory condition.

* * *

CASE 2.—Mrs. F. S., age twenty-four, first seen May 20, 1925, 9:30 a. m. Two previous pregnancies: First (six years before entry) in labor several days and finally had cesarean section; dead fetus. Second pregnancy: normal delivery, somewhat prolonged. Present pregnancy apparently normal.

At 3 a. m. on the day of entry, patient arose to void and was seized with violent pain in the abdomen. She was seen by a physician at 5:30 a. m. in extreme pain and shock; pulse, 120; temperature not taken. She arrived at the hospital at 9:30 a. m. Examination showed no signs of labor; the fetal parts were felt plainly through the abdominal wall. There were no fetal heart tones. There was considerable abdominal tenderness and marked hemorrhage. The urinalysis was essentially negative. The blood count showed marked secondary anemia (hemoglobin, 32 per cent) and a high white and neutrophil count.

Operation at 11 a. m. A dead fetus, the placenta and many large old blood-clots were found in the abdominal cavity. The uterus was ruptured along the scar of the former cesarean section. Hysterectomy was done and a transfusion of blood given.

The immediate postoperative reaction was good, but on the sixth postoperative day her temperature was 103, and she had a severe chill. A blood culture showed *B. coli,* for which mercurochrome was given intravenously. The patient was fever free on the seventeenth postoperative day, with normal progress thereafter. She was dismissed on June 11, 1925, in good condition.

* * *

CASE 3.—Mrs. M. D., age thirty-eight, first seen December 25, 1927, 7 a. m. Catamenia entirely negative. Eleven previous pregnancies, all normal with normal deliveries. This pregnancy, at term, normal, except that fetus seemed to be more in midline and high in the abdomen. Labor, began six hours before entry into the hospital. After labor had continued for four or five hours with little progress, a hypodermic (presumably pituitrin) was given to increase the pains, which became severe and rapid, but ceased suddenly. A large lump was noted in the right side of the abdomen. The physician in charge then advised hospitalization.

Examination showed the abdomen to be very large and the abdominal muscles very tense. No fetal heart sounds could be heard. Urinalysis showed some albumin and some red blood cells. The blood count showed a high white and neutrophil count.

Operation was done at 8:30 a. m. on the day of entry. Much free fluid was found in the abdomen. A dead fetus and the placenta were found in the abdominal cavity. The uterus was split from the middle

portion out through the broad ligament to the lateral abdominal wall. A total hysterectomy, bilateral oöphorectomy and salpingectomy were done, and a transfusion of 500 cubic centimeters of blood given.

The postoperative reaction and progress were very satisfactory and the patient was discharged January 12, 1928.

* * *

CASE 4.—Mrs. F. N., age thirty-two, entered the hospital June 28, 1929. Catamenia normal. Two previous pregnancies, the first normal; the second was terminated by abortion at two months. This pregnancy was normal until May 25, when considerable "water" passed. On June 8 there was a large gush of "water," but no pains. The position of the fetus was normal at that time.

Labor began on the afternoon of June 27, 1928, at 6:30 p. m., with hard pains every three minutes. On the following morning the pains came on at one to two-minute intervals, but were not sustained. At 3 a. m. the patient was given one-half cubic centimeter of pituitrin by hypodermic, but there was no progress. At 4 a. m. a forceps delivery was attempted. It was unsuccessful and the patient was sent to the hospital by ambulance.

A Dutryden's band was discovered as well as the fact that the child's head was very large. Version was attempted, but was unsuccessful. The uterus ruptured and cesarean section was decided upon.

Operation at 8 a. m.: Extraperitoneal approach. A dead fetus was obtained, the head very large (hydrocephalus). The usual closure of the uterus was made and the cervical tears repaired.

The postoperative reaction was good. There was some thrombophlebitis of the left leg and infection of the wound, both of which improved rapidly. The patient was dismissed on July 19, 1928, in good condition. She made an excellent recovery.

* * *

CASE 5.—Mrs. E. S., age thirty-eight, para 10, entered the hospital on June 9, 1929. Nine previous pregnancies with natural births. First labor normal in time and natural birth. There were bilateral lacerations of the uterus during the second labor and the patient had a rather severe hemorrhage. All the other labors were easy. In all but the first, the patient was usually in labor two or three hours with contractions, but no pain nor expulsive force until dilatation was completed. There was usually a rapid labor after expulsive contractions started.

In this confinement the patient was admitted to the hospital at 9 a. m., after having driven a heavy car forty miles after labor began. She continued to have regular contractions, but no pain for three hours. The cervix was completely effaced, but head had not engaged.

One-half cubic centimeter of pituitrin was given to start expulsive pains, without effect. Forty-five minutes later a second one-half cubic centimeter of pituitrin was administered. Within ten minutes expulsive pains began and a living child was born in a few minutes, four hours after entry. The old laceration of the left was reopened, extending into the body of the uterus.

As soon as the child was expelled the patient began to bleed freely and was soon in a condition of shock. The cervix was immediately grasped with the hand in the vagina, and pressure was applied over the fundus. Gas was administered and the rupture repaired through vagina with chromic catgut. The uterus was packed lightly and the old laceration on the right was brought together over the packing. Four grains of caffein sodium benzoate were given. A transfusion of 500 cubic centimeters of blood was given as soon as possible. The patient rallied immediately and the packing was removed after twenty-four hours. At no time had the patient an elevation of temperature.

Seventeen days after delivery she had a sudden severe hemorrhage. After the usual procedures this improved and the following day a transfusion of 500 cubic centimeters of citrated blood was given. Two days later the packing was removed from the vagina. This was done under anesthesia as there was a possibility of a sudden, alarming hemorrhage that might require surgical procedure. As she continued very anemic another transfusion was given on July 13, following which her condition continued to be very good. However, on July 22 there was a severe hemorrhage with loss of a great amount of blood causing the collapse of the patient. Transfusion was immediately resorted to, and the next day a complete abdominal hysterectomy and salpingectomy were done. It was found that the laceration had extended far into the left broad ligament with an area of considerable infection. This was carefully sterilized with iodin and sutured carefully. Considerable difficulty was encountered at this point from hemorrhage.

The pathologist's report read: "Uterus, 150 grams. Retained seminecrotic placental tissue. Marked chronic cervicitis with erosion."

Her subsequent progress was very satisfactory, showing gradual but very sure improvement, and she was dismissed from the hospital August 24, 1929, in good condition.

Although this patient had had previous rapid labors, the contractions had not reopened the old lacerations. This accident was probably the result of the use of pituitrin which started contractions of the entire uterus, causing expulsion before the head had time to mold.

SUMMARY

Case 1: Spontaneous, but not in line of scar made by previous cesarean section. This rupture was in the posterior surface of a uterus weakened by previous malpositions.

Case 2: Spontaneous. In the line of the scar of a previous cesarean section.

Case 3: Traumatic. Caused by the weakened walls of a uterus that had been stretched to its utmost eleven times before, with the sudden strong contractions excited by the administration of pituitrin.

Case 4: Traumatic. Caused by the use of pituitrin, which brought on sudden violent contractions of a uterus that had borne nine previous pregnancies. A head not properly molded was forced too rapidly through this previously weakened cervix.

CONCLUSIONS

All patients who have had previous cesarean operations should be warned of the danger of rupture of the uterus in subsequent labors, and if given a trial labor should not be permitted to have severe contractions during the early stage.

Version or the use of forceps should never be attempted until the cervix is completely dilated and the patient is entirely relaxed with an anesthetic.

Pituitrin is a dangerous drug when used to hasten labor, no matter what the indications for its use may be. If administered, it should be given in very small doses (one to three minims) at proper intervals to sustain contractions. Some consider intranasal application to be the safest method.

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